

* SWBAT solve problems for free fall objects

Sep 6-2:31 PM

Welcome!!!

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SECA Physics
Thursday 29 October 2015

- * Pick up:
 - slip of paper (for later)

Opening Question:

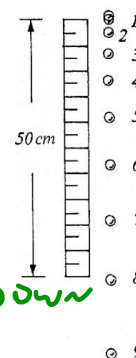
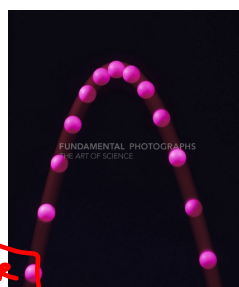
What kinds of "direction" could **VELOCITY** have?

+/- N, S E, W LEFT/RIGHT

Do you think acceleration is a vector or not?

YES $a = \frac{\Delta v}{\Delta t}$

Centering...



Sep 7-7:04 AM

Catchy Physics Phrases: Speed, Velocity, Acceleration

Centering...

Speed is

Change in distance over
change in time

$$SPEED = \frac{\Delta d}{\Delta t}$$

Velocity is

Speed with direction

Acceleration is

Change in **velocity** over
change in time

$$a = \frac{\Delta v}{\Delta t}$$

Oct 4-7:27 AM

Of falling books and feathers...

- Make a prediction with brief explanation
- Make an observation

SPREAD OUT WASHERS

MADE AN EVEN SOUND ON PAN

LONGER OR FARTHER SOMETHING

FALLS, THE MORE DISTANCE IT COVERS PER SECOND

~~MORE MASS / WEIGHT HEAVIER~~

Book and Feather (boring):

LIGHT

SHAPE

Golf ball and ping pong ball:

HEAVY

LIGHT

SAME SHAPE / SIZE

SAME

SAME HEAVY
2 Kleenex.

! AIR RESISTANCE

So, how could we get book and feather to fall the same???

Terminal Velocity

Oct 5-7:33 AM

Gravity causes acceleration!

On earth, the acceleration is " g " = 10 m/s^2 down
 "g" is the acceleration due to gravity
 \Rightarrow every second it speeds things up 10 m/s

Rearranging the formula we get:

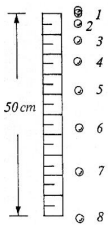
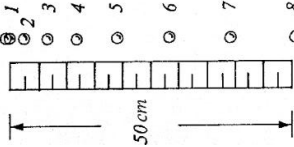
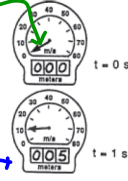

How FAST $V = g \cdot t$

And for distance it's:

How FAR $d = \frac{1}{2} \cdot g \cdot t^2$

$d = \frac{1}{2} \cdot 10 \frac{\text{m}}{\text{s} \cdot \text{s}} (1 \text{ s})^2$

$V = 10 \frac{\text{m}}{\text{s}} \cdot (1 \text{ s}) = 10 \frac{\text{m}}{\text{s}}$

Oct 5-8:33 AM

Daily 3 Questions

- * Every day except test/project days
- * 3 Questions on the topics of the day
- * Main source of daily points
- * I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

You can't get your points if you don't have your **NAME!!!**

Name	Period
1.	
2.	
3.	

Sep 9-7:32 AM

1. "g" is the acceleration due to gravity. It means that for every second that passes, an object in free fall gains 10 meters per second of speed.

2. What is the object's speed at 3 seconds ($t = 3 \text{ s}$)?

$$V = g \cdot t = 10 \frac{\text{m}}{\text{s} \cdot \text{s}} \cdot 3 \text{ s} = \boxed{30 \text{ m/s}}$$

3. How far has an object fallen after the first 2 seconds?

$$d = \frac{1}{2} \cdot g \cdot t^2 = \frac{1}{2} \cdot 10 \frac{\text{m}}{\text{s} \cdot \text{s}} \cdot (2 \text{ s})^2 = 20 \text{ m}$$

Oct 8-6:48 AM